REMARKS

This amendment is responsive to the Office Action of August 16, 2007. A Request for a Two-Month Extension of Time until January 16, 2008 is being submitted concurrently herewith. Reconsideration and allowance of the claims 18-36 are requested.

The Office Action

Claims 1, 7, and 17 stand rejected under 35 U.S.C. § 112.

Claims 1, 2, 5, 7 and 17 stand rejected under 35 U.S.C. § 102 as being anticipated by Obara (US 6,176,620).

Claims 1, 2, 5, 7, and 17 stand rejected under 35 U.S.C. § 102 as being anticipated by Jeffroy (FR 1,464,889).

Claims 6, 8, and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Obara.

Claim 9 stands rejected under 35 U.S.C. § 103 as unpatentable over Obara in view of Alexander (US 3,445,146).

Claims 14 and 16 stand rejected under 35 U.S.C. § 102 as being anticipated by Kato (US 4,938,610).

Claims 3, 4, 10, 11, and 15 were considered non-elected and were not examined.

The References of Record

Obara discloses a compound bearing which includes (1) a ball bearing with an outer race and an inner race as well as (2) a friction bearing 6c, 6d; 24, 21; 27, 26; etc. The friction bearing includes a sintered element 6c, 24, 27, etc. which is saturated with oil. This compound bearing replaces two ball bearings. The purpose of Obara is to design a drive which is as flat as possible. The friction bearing with the oil saturated sintered element forms an outer bearing around the inner ball bearing. The friction bearing prevents the shaft of the rotor from wobbling and maintains its axis true. Thus, the friction bearing of Obara has a pair of friction races which engage each other during normal operation.

Jeffroy discloses a main bearing including (1) a ball bearing with a series of balls between an inner race and an outer race, and (2) a hydrodynamic bearing. Gaps J_1, ... J_6 are configured to form and function as the hydrodynamic bearing at appropriate rotational speeds to compensate for the increased burden on the main bearing. In this manner, the hydrodynamic bearing functions during normal operation of the bearing and serves to protect the bearing itself.

Kato describes a roller bearing arranged between a shaft 1 and an outer race 2. Roller bodies 3 are disposed between the inner shaft and the outer race. Moreover, projections form an auxiliary bearing with an axially oriented gap G. The size of the gap is chosen in such a manner that during normal operation when high radial loads F occur, the surfaces 1c, 2b, 1d, 2c touch each other. In this manner, the auxiliary bearing makes contact under excessive loads to prevent damage to the main bearing itself.

Thus, in Obara, Jeffroy, and Kato, the auxiliary bearing surfaces engage during normal operation of the compound bearing. In Obara, the auxiliary bearing surfaces are engaged in normal operation. In Jeffroy, the hydraulic bearing functions continuously at faster speeds in normal operation. In Kato, the auxiliary bearing functions intermittently in normal operation. In Obara, Jeffroy and Kato, the auxiliary bearing functions during regular operation of the bearing to protect the bearing itself. All act to inhibit torques from the rotating shift tipping off axis, which torques would stress and wear the roller bearings.

The Present Application

Unlike the prior art, which serves to conserve and protect the main bearing, the present application is concerned only with avoiding serious consequences in response to the main bearing failing. As long as the main bearing is not damaged, i.e., under normal operation, the auxiliary bearing surfaces do not touch and the rotor is supported and maintained in an accurate position by the ball bearing. However, in response to a bearing failure, such as balls of the ball bearing portion breaking, only then does the present auxiliary bearing come into play.

Once the auxiliary bearing comes into play, it is used only a single time. The auxiliary bearing is configured to accurately maintain the position of the rotor as

the rotor comes to a stop. In high speed applications, such as friction vacuum pumps in which the rotor may be rotating at 100,000 RPM and have extremely close tolerances between surfaces of the rotor and stator, the rotor needs to be brought to a stop over a number of rotations, all the while maintaining the position of the inner bearing and the rotor shaft with sufficient accuracy that the rotor and stator do not come into contact with each other.

Thus, in the present application, the emergency bearing assumes the function of the main bearing only during an emergency rundown of the rotor after the main bearing has failed and until it comes to a stop. The present application describes a bearing which solves a problem which is neither addressed nor solved by the prior art of record. None of the applied references teach or fairly suggest an emergency bearing which comes into operation only if the main bearing itself becomes defective. None of the references teach or fairly suggest a bearing which solves this problem.

The Claims Distinguish Patentably Over the References of Record

The claims have been carefully redrafted in order to bring out novel aspects. For example, new claim 18 calls for the emergency bearing surfaces to assume mounting and guidance functions only during a one-time emergency run until the rotating component can be brought to a standstill.

Some dependent claims emphasize emergency bearing surface constructions configured for this purpose such as steel or tempered roller bearing steel which can perform the mounting and guidance functions of the defective ball bearing without seizing, but raising sufficient friction to help bring the rotating part to a stop.

Accordingly, it is submitted that new claims 18-36 are not anticipated by and distinguish patentably over the references of record.

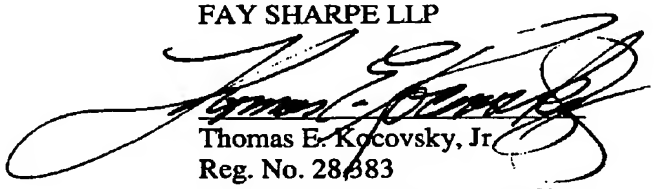
CONCLUSION

For the reasons set forth above, it is submitted that all claims distinguish patentably over the references of record and meet all statutory requirements. An early allowance of claims 18-36 is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he is requested to telephone Thomas Kocovsky at (216) 861-5582.

Respectfully submitted,

FAY SHARPE LLP



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